CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A communication system, comprising:

a central station that receives an optical data signal and applies a composite code to the optical signal, the composite code including a first code and a second code, so as to produce a composite-coded optical signal;

a first-level mux station that receives the composite-coded optical signal and decodes the first code from at least a portion of the optical signal, producing a first-level decoded optical signal;

a second-level mux station that receives the first-level decoded optical signal and decodes the second code from at least a portion of the optical signal, thereby producing a fully decoded optical signal; and

a user station that receives the fully decoded optical signal.

2. (Original) The communication system of claim 1, wherein the first-level mux station includes a reconfigurable encoder for applying a selected composite code.

3. (Original) The communication system of claim 1, wherein the central station applies a composite code selected from a set of composite codes.

4. (Original) The communication system of claim 3, wherein composite codes are generated from a set of first-level codes and a set of second-level codes.

5. (Currently Amended) A central station for an optical network, comprising:

a transmitter coupled to produce an optical data signal from an electrical data signal; and

an encoder coupled to apply a composite code to the optical data signal, the composite code having a first code applied to [[and]] a second code, wherein the first code is to identify a first station to remove the first code from the optical data signal and

the second code is to identify a second station coupled to receive ~~a decoded output~~ the optical signal from the first station and to remove the second code from the optical data signal after the first code is removed.

6. (Previously Presented) The central station of claim 5, wherein the composite code to be applied by the encoder is a temporal code.

7. (Previously Presented) The central station of claim 6, wherein the composite code is an address code designate an intended destination for data defined by the electrical data signal.

8. (Currently Amended) A multiplexing station for an optical network, comprising:

a temporal address decoder coupled to receive a signal containing data coded according to a first downstream address code and a second downstream address code and to strip the first downstream address code from the signal, wherein the first downstream address code is to designate a first destination and the second downstream address code is to designate a second destination, the second destination to receive the ~~stripped~~ signal from the first destination after the signal is stripped of the first downstream address code by the first destination.

9. (Previously Presented) The multiplexing station of claim 8, wherein the temporal address decoder is to strip an optical code from the signal.

10. (Previously Presented) The multiplexing station of claim 9, wherein the optical code is a composite code.

11.-13. (Canceled)

14. (Previously Presented) The multiplexing station of claim 8, wherein the temporal address decoder comprises at least one fiber Bragg grating coupled to strip the code.

15. (Previously Presented) The multiplexing station of claim 14, further comprising an optical circulator coupled to direct the signal to at least one fiber Bragg grating.

16. (Currently Amended) A method, comprising:

selecting a first temporal code and a second temporal code for an optical signal to identify a first station and a second station of a plurality of second stations, respectively;

applying the first and second temporal codes to the optical signal with at least one fiber Bragg grating;

broadcasting the optical signal to a user station via the first station and the second station; [[and]]

stripping the first temporal code from the optical signal at the first station[[.]]; and

stripping the second temporal code from the optical signal at the second station after the first station strips off the first temporal code.

17. (Previously Presented) The method of claim 16, wherein the temporal code is a composite code.

18. (Canceled)

19. (Previously Presented) A passive optical network, comprising:

at least one first-level multiplexing station that receives a first optical signal, applies a first-level code to the first optical signal, and transmits a coded first optical signal; and that receives a second optical signal, decodes a first-level code from the second optical signal, and transmits a resulting decoded optical signal; and

a second-level multiplexing station that receives an optical signal from the at least one first-level multiplexing station and decodes the optical signal to decode a second-level code.

20. (Previously Presented) The passive optical network of claim 19, wherein the second-level multiplexing station applies a second-level code to an optical signal that is transmitted to the at least one first-level multiplexing station.

21. (Original) A communication system, comprising:

a user station that transmits an optical signal.

a second-level mux station that receives the optical signal and applies a second-level code to the optical signal, thereby producing an encoded optical signal;

a first-level mux station that receives the encoded optical signal from the second-level mux station and applies a first-level code to the encoded optical signal producing a composite-coded optical signal; and

a central station that receives the composite-coded optical signal and decodes the first-level code and the second-level code to identify the user station that transmitted the optical signal.

22. (Previously Presented) The central station of claim 6, wherein the code to be applied by the encoder is a composite code.

23. (Previously Presented) A central station for an optical network, comprising:

a decoder to decode a composite code from an optical data signal received from a first station, the composite code having a first-level code and a second-level code, wherein the first-level code is to identify the first station and the second-level code is to identify a second station coupled to provide an output signal to the first station, wherein the output signal is coded with the second-level code and the first-level code is applied to the second-level code of the output signal ~~added~~ by the first station ~~to the second-level code of the output signal~~; and

an optical receiver coupled to produce an electrical signal from the decoded optical data signal.

24. (Previously Presented) The central station of claim 23, wherein the composite code is a temporal code.

25. (Previously Presented) The central station of claim 23, wherein the electrical data signal contains data from a user station of a plurality of user stations to be provided to an external data link.

26. – 28. (Cancelled)